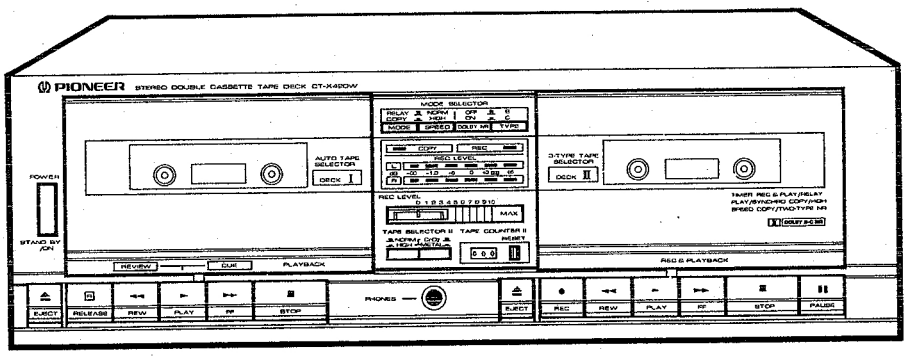
Operating Instructions
Bedienungsanleitung
Mode d'emploi
Istruzioni per l'uso

STEREO DOUBLE CASSETTE TAPE DECK
STEREO-DOPPELKASSETTENBANDGERÄT
DOUBLE MAGNÉTOCASSETTE STÉRÉO
DOPPIA PIASTRA DI REGISTRAZIONE STEREO

CT-X420W

Original



ENGLISH
DEUTSCH
FRANÇAIS
ITALIANO

Thank you for buying this Pioneer product.
Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.
In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE
[For U.S. and Canadian models]

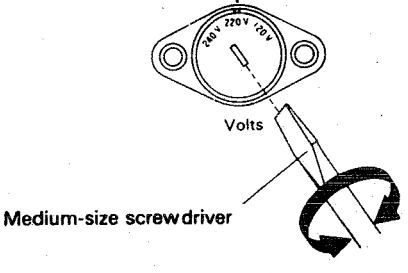
The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

LINE VOLTAGE SELECTOR SWITCH

Only multi-voltage models are provided with this switch. U.S., Canadian, European, U.K., and Australian models are not provided with this switch.

The line voltage selector switch is on the rear panel. Before your model is shipped from the factory, this switch is set to the power requirements of the destination. Check that it is set properly before plugging the power cord into the AC outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows.

1. Disconnect the power cord.
2. Use a medium-size screwdriver.
3. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.



"This product is manufactured to comply with the radio interference requirements of EEC Directive 76/889/EEC and 82/499/EEC."

PIONEER

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.

HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

LOCATION — The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.

VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

POLARIZATION — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.

NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE — The appliance should be serviced by Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

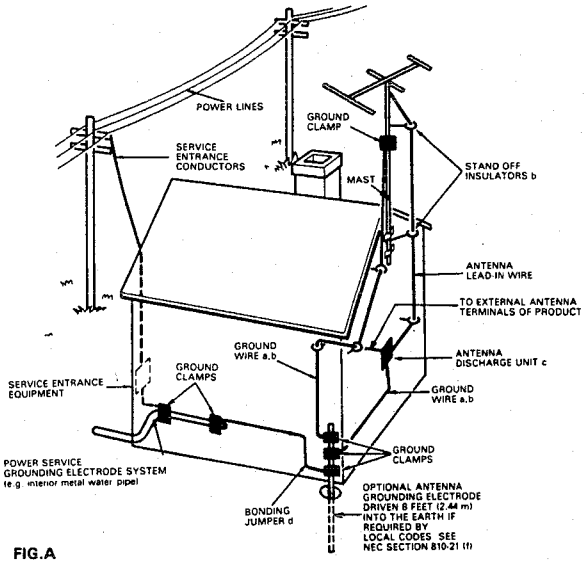

POWER LINES
GROUND CLAMP
SERVICE ENTRANCE CONDUCTORS
MAST
STAND OFF INSULATORS b
ANTENNA LEAD-IN WIRE
TO EXTERNAL ANTENNA TERMINALS OF PRODUCT
ANTENNA DISCHARGE UNIT c
GROUND WIRE a,b
GROUND CLAMPS
SERVICE ENTRANCE EQUIPMENT
GROUND WIRE a,b
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (e.g. interior metal water pipe)
BONDING JUMPER d
OPTIONAL ANTENNA GROUNDING ELECTRODE DRIVEN 8 FEET (2.44 m) INTO THE EARTH IF REQUIRED BY LOCAL CODES. SEE NEC SECTION 810-21 (f)

FIG.A

a) Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel, bronze wire, or larger as ground wire.

b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.

c) Mount antenna discharge unit as closely as possible to where lead-in enters house.

d) Use jumper wire not smaller than No.6 AWG (13.3 mm²) copper or equivalent when separate antenna-grounding electrode is used.

IMPORTANT 1

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT 2

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off. Disconnect the wall plug when the equipment is not in (regular) use, e.g. when on vacation.

FOR USE IN THE UNITED KINGDOM

WARNING: This plug must only be connected to electronic apparatus equipped with suitable sockets.
If not, cut off the plug and fit an appropriate type in accordance with the instructions below.
The cut-off plug must be disposed of as an electrical shock hazard could exist if connected to a socket outlet.

The wires in this mains lead are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

CONTENTS

Connections 3
Front Panel Facilities 4
Playback 6
Cassette Tapes 7
Recording 8
Tape Copying 9
Recording and Playback Using an Audio Timer 10
Maintenance 11
Troubleshooting 11
Specifications 12

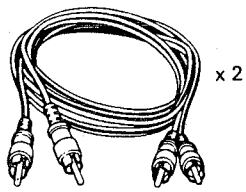
CONNECTIONS

CONNECTING THE CASSETTE TAPE DECK TO AN AMPLIFIER

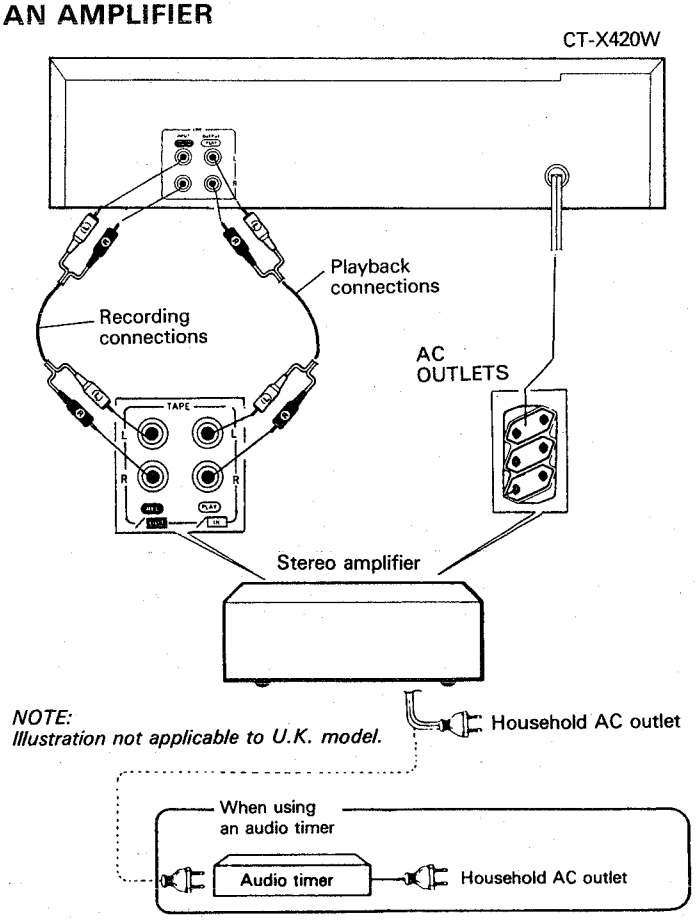
- Read through the operating instructions of the stereo components which you intend to connect to this unit.
- Turn on the power only after all the connections are completed.
- The top jacks are for the left (L) channel; the bottom jacks are for the right (R) channel.
- Make sure that the plugs are inserted securely. Improper connection may generate noise.
- Avoid placing the unit directly on top of an amplifier since this may cause humming or other noise.
- Avoid installing the unit too close to a TV set since humming can arise during recording operations.

CHECK ACCESSORIES

Connection cord with pin plugs x 2



x 2



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FRONT PANEL FACILITIES

Deck I: For playback

Deck II: For playback/recording

POWER (STAND-BY) switch

NOTE:
The unit's POWER switch is geared to selecting the transformer's secondary and so even at the STAND-BY position, the unit's circuitry will work as long as the power cord is connected to power outlet. Disconnect the power cord from the power outlet when you do not plan to use the unit for a long period of time.

LEVEL meter

REC LEVEL control

EJECT button (⏏)

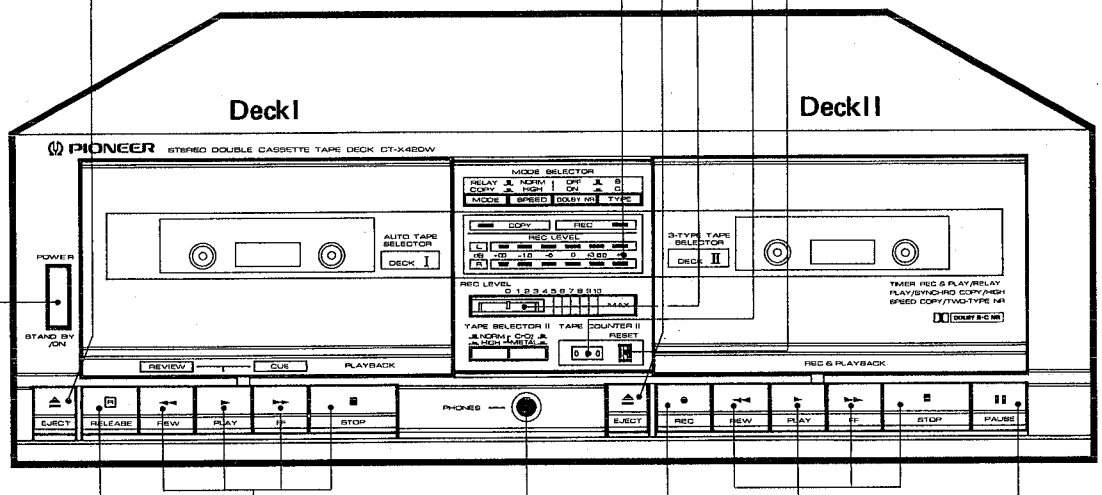
If the cassette cannot be ejected, do not forcibly press the eject button but instead carry out the following procedure:

(1) Push in the door firmly once again (both decks I and II).
(2) Press the STOP switch (both decks I and II).
(3) Put the MODE switch in the RELAY (■) position.
(4) Press the eject button.

TAPE COUNTER

Indicates the transport position of the tape loaded in Deck II.

RESET button



Operating switches

◀◀ : Rewind switch
▶▶ : Fast forward switch
■ : Stop switch.
▶ : PLAY switch.

Pause switch (▮▮)

Press to temporarily stop the tape travel. To restart the tape travel, press once again. The pause function does not operate when the deck is in the fast forward or rewind mode.

Release switch (R)

Press this switch after finding a non-recorded interval between tracks using the CUE or REVIEW mode. The unit will automatically go into the playback mode.

PHONES jack

Operating switches

Recording switch (●)

The deck cannot be placed in the recording mode if a cassette with broken erasure prevention tabs is loaded, or if no cassette tape is loaded.

MODE switch (RELAY/COPY)

NOTE:
When not performing tape copy, be sure to set the MODE switch to RELAY (■) position. If the MODE switch is COPY (■) position, normal recording (of program from the LINE INPUT terminal) will not be possible.
When the MODE switch is in the COPY (■) position, the PLAY, FF, and REW switches of Deck I will not function unless Deck II is in the recording or recording standby status.
When the MODE switch is in the RELAY (■) position, relay play can be performed equally between Deck I and Deck II.
When the MODE switch is in the RELAY (■) position, if the PLAY switch or REC switch (Deck II only) of one deck is pressed, the PLAY, FF, and REW switches of the other deck will not function.

*DOLBY NR switch (OFF/ON)

Press this switch to ON (■) for recording with the built-in Dolby Noise Reduction system and for playback of tapes which have been recorded using the Dolby Noise Reduction system. For other tapes, do not press this switch.

DOLBY NR switch (TYPE B/C)

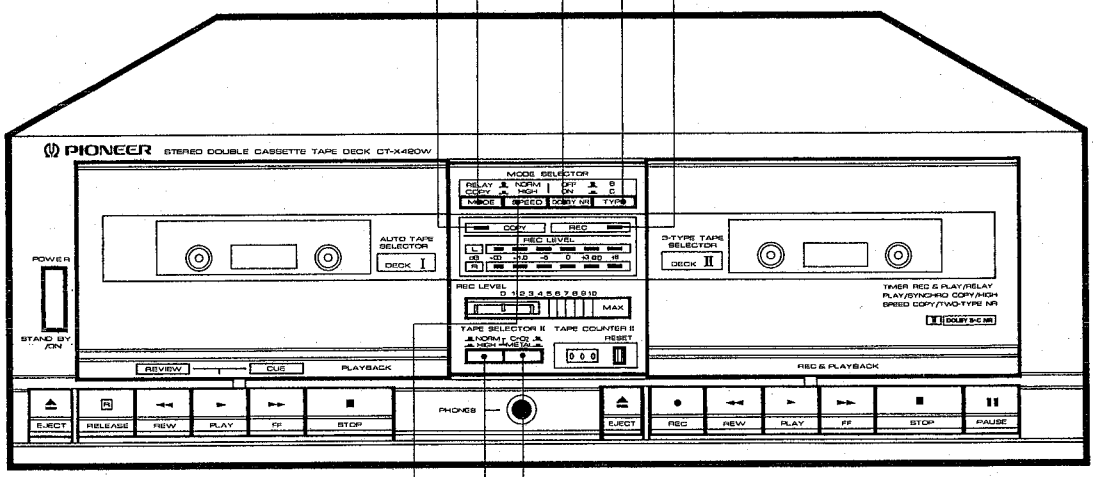
After the DOLBY NR switch (ON/OFF) is pressed, select type B or C using this switch.

COPY indicator

This lights in the copying mode.

REC indicator

This lights in the recording mode.



SPEED switch (NORM/HIGH)

HIGH (■): Pressing this switch will cause high speed copying to take place only when the unit is in the tape copy mode.

NORM (■): Tapes are copied at the normal speed.

TAPE SELECTOR II switches

This selectors allows Deck II, the bias and equalizer characteristics to be selected during recording, and equalizer characteristics during playback, in line with the type of tape you are using on Deck II.

Normal tape : Release the left switch (■ **NORM**).

CrO_2 tape : Press the left switch (■ **HIGH**) and release the right switch (■ **CrO_2**).

Metal tape : Depress both the right and left switches (■ **HIGH**, ■ **METAL**).

NOTE:
Deck I is provided with an automatic tape selector mechanism.

*

- Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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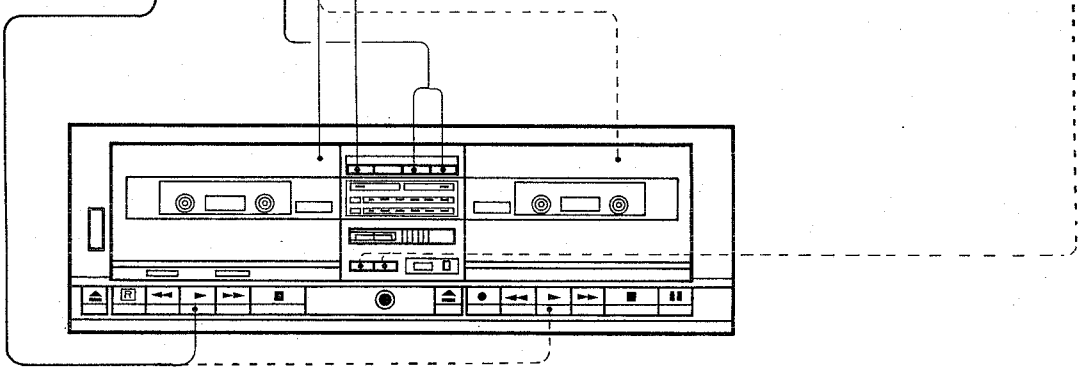
PLAYBACK

- Do not simultaneously press the PLAY switches of Deck I and Deck II. This may cause a breakdown.
- When one deck is in the play mode, if the PLAY switch for the other deck is pressed, that deck will enter the standby mode; when the other deck (presently playing) is stopped, the deck in the standby mode will automatically enter the play mode for relay play.

SINGLE PLAYBACK (The function of both Decks I and II)

① **Set the MODE switch to the RELAY (■) position.**
② **Load a pre-recorded tape.**
③ **Select the DOLBY NR switches.**
④ **Press the PLAY switch.**

③′ **Select the TAPE SELECTOR switches.**
- Select only for playback on Deck II.
- For playback on Deck I, an auto tape selector is provided hence there is no need to select the TAPE SELECTOR.

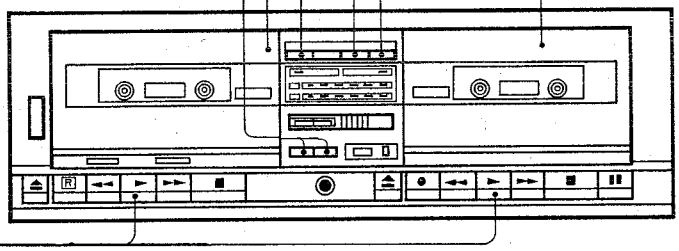


RELAY PLAYBACK (Continuous playback Deck I → Deck II, or Deck II → Deck I)

When the tape loaded in one deck comes to the end of its playback and stops, the other deck enters the playback mode. While the second tape is playing, a new tape can be replaced in the first deck in order to perform continuous playback of different tapes. This is a convenient feature for party background music, etc.

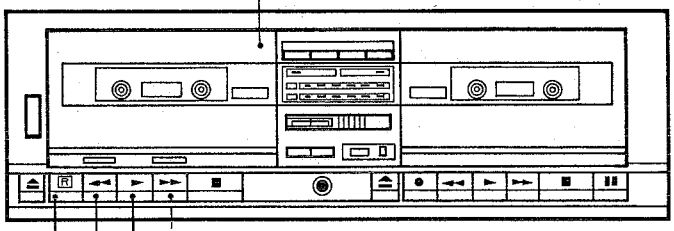
① **Set the MODE switch to the RELAY (■) position**
② **Load pre-recorded tapes.**
Load the tapes in Deck I and II which have both been recorded with the same Dolby NR mode.
③ **Select the DOLBY NR switches.**
④ **Set the TAPE SELECTOR switches (for playback on Deck II).**
⑤ **Press the PLAY switch for the deck you wish to begin playing first, then press the PLAY switch for the other deck.**
- When the tape which is playing back reaches the end and automatically stops, the other deck automatically starts playback.

NOTE:
- *Do not press the MODE switch during relay playback. If the MODE switch is pressed COPY (■), the relay playback mode will be canceled.*



CUE AND REVIEW (The function of Deck I only)

① **Load a pre-recorded tape.**



② **Press the PLAY switch.**

③ **To return to the beginning of the presently playing program, press the REW switch. To advance the tape to the beginning of the next program after the one currently playing, press the FF switch.**
A squeaking sound will be heard from the speakers.

④ **When the non-recorded interval between program tracks is detected (the squeaking sound ceases), press the RELEASE switch.**
The fast forward or rewind mode will be released, and the deck will automatically re-enter the playback mode.

NOTES:

- *Do not make switching directly from CUE to REVIEW or vice-versa: abnormal operation might result.*
- *To switch from CUE or REVIEW operation to FF or REW operation, first press the STOP switch and then the FF switch or REWIND switch.*
- *Reduce the volume level of the stereo amplifier before performing the CUE or REVIEW operation. If the volume is too high, the tweeters in the speaker system may be damaged.*

AUTO-STOP MECHANISM (The function of both Decks I and II)

When the tape is fully wound onto one of the reels during recording, playback, fast forward or rewind, the auto-stop mechanism is activated without the STOP switch having to be pressed, and the tape will automatically stop.

CASSETTE TAPES

CHECK CASSETTE BEFORE USE

Slack or protruding tape

If the tape protrudes from the cassette as shown in Fig. A or is slack, the tape may run without passing between the capstan and the pinch roller and so may be damaged. Take up the slack by inserting a pencil through the reel hub and turning it as shown in Fig. A.
Some tapes are provided with a tape stopper to prevent tape slack. Make sure that you remove the tape stopper before inserting the tape into the deck.

Erasure prevention tabs

Cassette tapes are provided with erasure prevention tabs, as shown in Fig. B, which act as a protection device to prevent the accidental erasure of a recording which you want to keep. If you remove the tabs, as shown in Fig. B with a screwdriver, you will be able to prevent erasure if you accidentally set the tape deck to the recording mode by depressing the REC switch.
To re-record, cover the tab opening with adhesive tape (Fig. C).

NOTE:

Cassette tapes are provided with two tabs (A or 1 and B or 2) so you can protect the recordings on both sides.

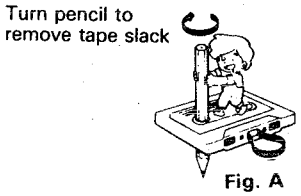


Fig. A

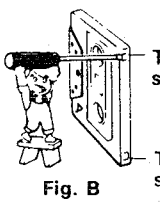


Fig. B

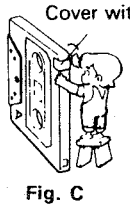


Fig. C

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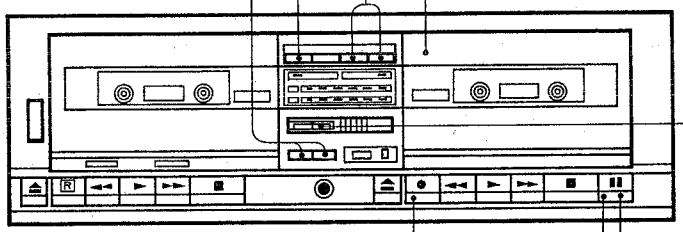
RECORDING

RECORDING (The function of Deck II only)

Erasure prevention tabs?
The REC switch does not work when the erasure prevention tabs of a loaded cassette tape have been broken off (See page 7). Do not attempt to press the REC switch with unreasonable force.

① **Set the MODE switch to the RELAY (■) position.**
② **Load a tape.**
③ **Select the DOLBY NR switches and TAPE SELECTOR switches.**
④ **Set up the program source which you intend to record.**



⑤ **Press the PAUSE switch, followed by the REC switch to place the deck in the recording stand-by mode.**

⑥ **Adjust the recording level.**
⑦ **Press the PAUSE switch to begin recording.**

ADJUSTING THE RECORDING LEVEL

The adjustment of the recording level is the most important factor in achieving good recording results. A high level is good for the signal-to-noise ratio and the dynamic range but an excessively high level distorts the sound. If the level is made too low out of fear of distorting the sound, irritating tape hiss will mar the recording. Depending on the manufacturer and type of tape, the characteristics of a tape differ even when the same kind is used. Making a setting just near the tape's maximum recording level will do full justice to a tape's characteristics and result in a good-quality recording.
Adjust the REC LEVEL control so that the level meter's "0 dB" just lights. No harm will be done if the "+3 dB" indicator lights momentarily at peaks (when using metal tapes, it is permissible for the "+6 dB" indicator to light momentarily).

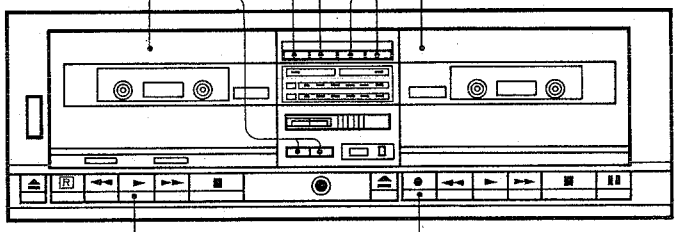
NOTE:
- *The DD mark on the level meter indicates the reference level for the Dolby NR system.*
- *In reality, the optimum recording level may differ somewhat, depending on the music source and type of tape used. In order to deliver the best results of which your tapes are capable and to produce better recordings, set the recording level after actual testing, by listening carefully to the sound produced and adjusting it to a level most pleasing to you.*
- *The level meter may react differently during recording and playback of the same music tape; this is due to differences in tape sensitivity, and creates no problem so long as the variation is not severe.*

TAPE COPYING (From Deck I to Deck II)

NOTE DURING HIGH-SPEED COPYING
When performing high-speed copying with this unit, if a television is used nearby, a high-pitched interference sound may be heard on the recording. In this case, either use the normal-speed copying function, or turn off the power of the television.

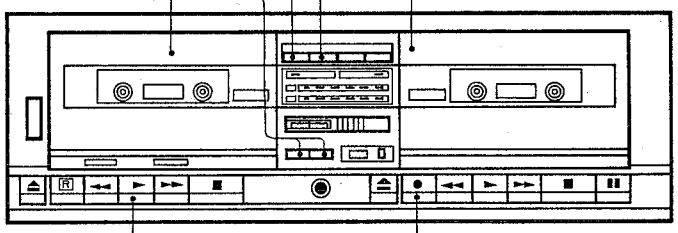
NORMAL SPEED COPYING (To copy an entire tape while listening to its playback)

① **Load a playback tape into Deck I and a tape into Deck II.**
② **Set the DOLBY NR switches to match the tape in Deck I, and the TAPE SELECTOR to match the tape in Deck II.**
③ **Set the MODE switch to the COPY (■) position.**
④ **Set the SPEED switch to the NORM (■) position.**
⑤ **Press the PLAY switch.**
Playback will not begin immediately, but the deck will enter the stand-by mode.
⑥ **Press the REC switch.**
At the same time that Deck II begins recording, Deck I will begin playback.



HIGH-SPEED COPYING (To copy an entire tape in a short time)

① **Load a playback tape into Deck I and a tape into Deck II.**
② **Set the TAPE SELECTOR switches in accordance with the kind of tape used in Deck II.**
③ **Set the MODE switch to the COPY (■) position.**
④ **Set the SPEED switch to HIGH (■) position.**
⑤ **Press the PLAY switch.**
Playback will not begin immediately, but the deck will enter the stand-by mode.
⑥ **Press the REC switch.**
At the same time that Deck II begins recording, Deck I will begin playback.



RE-COPYING PROCEDURE (in the event that a failure occurred at the start of copying)

① **Press the STOP switches of Decks I and II.**
② **Put the MODE switch in the RELAY (■) position.**
③ **Press the PLAY switch of Deck I, then press the REW switch and perform a REVIEW operation. Once the tape returns to the beginning of the program to be copied, press the STOP switch.**
④ **Press the REW switch of Deck II, and when the tape reaches the point at which recording is to be started, press the STOP switch.**
⑤ **Carry out the copying procedure from step ③.**

NOTE DURING TAPE COPYING:

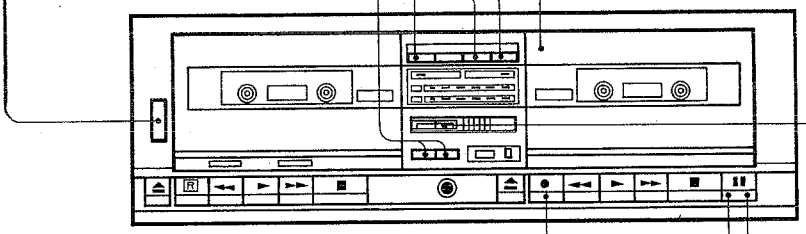
- *When repeating the tape copying, be sure to leave the original tape in deck I. Making a copy of a copy will result in a deterioration in sound quality.*
- *When making tape copies, adjustment of the recording level is not required.*
- *When performing tape copying, be sure to use tapes of the same length.*
- *When performing tape copying, the copy will be produced with the same noise reduction effects as those used on the original tape, regardless of the position of the noise reduction switches. For example, if the original tape was recorded with the Dolby C noise reduction, the copy will be produced with the same Dolby C noise reduction effects.*
- *If a tape prerecorded at a high recording level is loaded in Deck I, and an empty tape with a low saturation level is loaded in Deck II for copying, the resulting sound may be distorted.*
- *Do not change the SPEED swtich position during tape copying.*
- *When you wish to perform CUE or REVIEW using Deck I while copying a tape, put Deck II into the REC PAUSE mode. If you do not do this, noise may be recorded.*
- *The playback sound output from the LINE OUTPUT terminals during copying is to enable you to check the COPY operation. Consequently, it may sometimes differ slightly from the original sound.*

ENGLISH

RECORDING AND PLAYBACK USING AN AUDIO TIMER

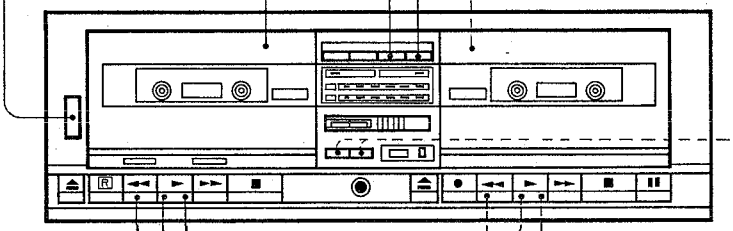
UNATTENDED RECORDING (The function of Deck II only)

① **Set the POWER switch to ON.**
② **Load a tape.**
③ **Select the DOLBY NR switches and TAPE SELECTOR switches.**
④ **Set the MODE switch to RELAY (■) position**
⑤ **Tune in the desired station with your stereo tuner.**
⑥ **Press the PAUSE switch followed by the REC switch, to set to the recording stand-by mode.**
⑦ **Adjust the recording level.**
⑧ **Set the audio timer.**
When this is done, the audio timer will turn all connected components OFF.
⑨ **Release the PAUSE switch.**
At the time set on the audio timer, the power will be turned ON, and recording will begin automatically.



WAKE-UP PLAYBACK (The function of both Decks I and II)

① **Set the POWER switch to ON.**
② **Load a pre-recorded tape.**
③ **Select the DOLBY NR switches.**
③′ **Select the TAPE SELECTOR switches.**
- Select when performing wake-up playback on Deck II.



④ **Press the PLAY switch.**
⑤ **Adjust the VOLUME control at the stereo amplifier.**
⑥ **Rewind the tape to the position where playback is to start.**
⑦ **Set the audio timer.**
When this is done, the audio timer will turn all connected components OFF.
⑧ **Press the PLAY switch.**
At the time set on the audio timer, the power will be turned on and playback will begin automatically.

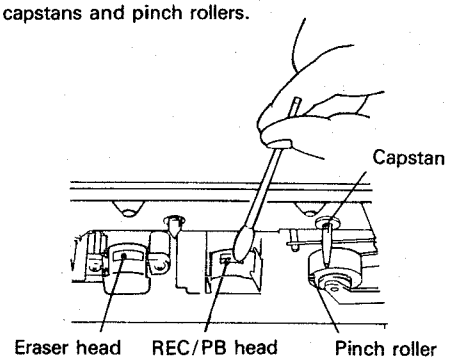
Operations may vary depending on the audio timer used; be sure to consult the operating instructions for the audio timer you actually employ.

MAINTENANCE

CLEANING THE HEAD, PINCH ROLLER AND CAPSTAN

The heads, pinch roller and capstan are parts which are liable to get dirty quite easily. In particular, if the heads are dirty, the high-frequency components are not reproduced and the stereo balance is impaired, resulting in a deterioration in the playback sound. It is therefore recommended that the head section be cleaned regularly.

1. Depress the EJECT button and open the cassette door.
2. Dip the cleaning swab into the cleaning fluid and use it to wipe the heads, capstans and pinch rollers.



NOTE:
Do not load a tape after cleaning the head section until the cleaning fluid has completely dried (this takes two or three minutes).

DEMAGNETIZING THE HEADS

After using the cassette deck over a period of time, the heads will become magnetized. The same effect is also caused by bringing a screwdriver, magnet or other magnetized object too near the heads. This causes loss of high-frequency sound during recording and playback, and is also a cause of interference noise. The heads should be regularly demagnetized with a head demagnetizer (eraser) which can be purchased at the dealers shops.
When demagnetizing the heads, be sure the cassette deck's POWER switch is in the STAND-BY position. For detailed instructi ns, consult the operating manual for your head demagnetizer (eraser).

CLEANING THE FRONT PANEL SECTION

Wipe the front panel and the cassette door when dusty or greasy with a soft cloth containing a small amount of ordinary liquid soap. Then, wipe dry with a cloth. Never use volatile spirits like thinners, benzine or alcohol because they will damage the panel's finish.

ENGLISH

TROUBLESHOOTING

Apparent malfunctions are often caused by faulty or incorrect operation. If you think that something has gone wrong with your unit, check out the points in the list below.
The trouble may lie in another component. Check the stereo amplifier, speaker and other appliances being used.
If the trouble is not remedied after checking the points below, contact your dealer and ask for help.

Symptom	Probable cause	Remedy
Tape does not travel.	1. Disconnected power cord. 2. PAUSE switch at ON. 3. MODE switch at COPY (■) position.	1. Re-connect cord. 2. Press PAUSE switch again. 3. Set MODE switch to RELAY (■) position.
No sound (playback).	1. No sound recorded on tape. 2. Incorrect amplifier operation. 3. Incorrect connections with amplifier.	1. Replace with pre-recorded tape. 2. Refer to the operating instructions of the amplifier. 3. Refer to page 3 and re-connect equipment.
Unit will not record.	1. Erasure preventions tabs broken off. 2. Incorrect connections with amplifier.	1. Replace tape or cover tab openings (see page 7). 2. Refer to page 3 and re-connect equipment.
Playback sounds distorted.	1. Head dirty. 2. Head magnetized. 3. Distorted sounds recorded onto tape.	1. Clean the heads. 2. Demagnetize the heads. 3. Use a different cassette tape, or re-record.
High frequency sounds not reproduced.	1. Tape not recorded using Dolby NR system and being played back with the Dolby NR (B or C) switch ON.	1. Set the Dolby NR switch OFF.
High noise level.	1. Tape recorded using Dolby NR system and being played back with Dolby NR switch OFF.	1. Select the Dolby NR switch.

DEW CONDENSATION

When the unit is moved from a cold to a warm room, or a quick temperature change occurs, condensation will form on the mechanical parts, affecting performance of the unit. In such cases, leave the unit in a warmer atmosphere for approximately one hour, or gradually change the room temperature.

NOTE:
When installing the tape deck, do not place a cloth over the top or block the ventilation openings in any other way.

SPECIFICATIONS

Systems ..... 4 track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head x 1
"Hard Permalloy" playback head x 1
"Double-gap Ferrite" erasing head x 1
Motor ..... DC servo motor x 2
Wow and Flutter ..... No more than 0.075% (WRMS)
No more than ± 0.19% (DIN)
Fast winding Time ..... Approximately 110 seconds
(C-60 tape)

Frequency Response
−20 dB recording:
Normal tape ..... 35 to 14,500 Hz
Chrome tape ..... 35 to 15,000 Hz
Metal tape ..... 35 to 15,000 Hz
0 dB recording:
Normal tape ..... 35 to 10,000 Hz
Chrome tape ..... 35 to 11,000 Hz
Metal tape ..... 35 to 14,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 56 dB
Noise Reduction Effect
Dolby NR B type ON ..... More than 10 dB (at 5 kHz)
Dolby NR C type ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.8% (0 dB)
Input (Sensitivity)
LINE (INPUT) ..... 63mV (Input impedance 74kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 316mV (Output impedance 7.8kΩ)
HEADPHONES ..... 45 mV (Load impedance 8 Ω)

Subfunctions

- Relay playback (Deck I ⇄ Deck II)
- Synchronized copy start
- High-speed and normal-speed tape copying (Deck I → Deck II)
- Dolby NR B/C types
- Auto tape selector (Deck I)
- 5 segments/channel LED level meter
- Cue and Review (Deck I)
- Full automatic stop function
- Timer stand-by function
- One-Touch recording
- 3 digits mechanical tape counter
- Headphone jack

Miscellaneous

Power Requirements
U.S., Canadian models ..... AC 120 V, 60 Hz
European model ..... AC 220 V, 50/60 Hz
U.K., Australian models ..... AC 240 V, 50/60 Hz
U.S. military, other destination models .... AC 120 V/220 V/240 V, 50/60 Hz (switchable)
Power Consumption
U.S., Canadian models ..... 18 W
European, U.K., Australian models ..... 20 W
U.S. military, other destination models ..... 15 W
Dimensions ..... 360 (W) x 115 (H) x 325 (D) mm
14-1/8 (W) x 4-1/2 (H) x 12-13/16 (D) in
Weight (without package) ..... 4.7 kg (10 lb 6 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.